

What Is Claimed:

1. A method for interacting among a plurality of components of a speech system, the plurality of components including language technology components, a middleware component, and at least one high-level application component, the method comprising:

receiving substantially all data communications in the speech system at the middleware component;

forwarding the data communications from the middleware component to a destination one of the language technology components and the high-level application component, as determined by a configuration file;

receiving substantially all message communications in the speech system at the middleware component; and

forwarding the message communications from the middleware component to at least one of the language technology components and the high-level application component, as determined by the configuration file.

2. The method of claim 1, wherein the speech and language technology components include at least one of a speech recognizer component, a speaker identification component, a topic detection component, and a name extraction component.

3. The method of claim 1, wherein the language technology components, the middleware component, and the at least one high-level application component are software modules that are distributed over a plurality of computing devices.

4. The method of claim 1, further comprising:
logging errors encountered by the language technology components at the middleware component.

5. The method of claim 1, wherein the middleware component presents a single system state to the high-level application component, the single system state being based on individual states of the language technology components.

6. The method of claim 5, wherein the single system state is selected from:
a starting up state that indicates that at least one of the language technology components is initializing,
a down state that indicates that at least one of the language technology components is not available, and
an up state that indicates that all of the language technology components are available.

7. The method of claim 6, wherein the single system state is further selected from:

an aborting state that indicates that the middleware component is disconnecting from the high-level application component, and

a shutting down state in which the middleware component discontinues communications with the language technology components.

8. The method of claim 1, wherein the configuration file is an extensible markup language (XML) document.

9. The method of claim 1, wherein the data communications are implemented as data pipes.

10. A speech system comprising:
a high-level application component;
a plurality of language technology components;
at least one configuration file that describes communication paths among the high-level application component and the plurality of language technology components;
and

a language component manager (LCM) configured to act as an intermediary for communications between the high-level application component and the language technology components and between ones of the language technology components, the LCM connecting the high-level application component and the language technology components based on the configuration file.

11. The speech system of claim 10, wherein the configuration file is a complete system specification for the speech system.

12. The speech system of claim 10, wherein the high-level application component provides speech services to end-users.

13. The speech system of claim 10, wherein the LCM presents a single interface to the high-level application component.

14. The speech system of claim 10, wherein the speech system performs speech recognition.

15. The speech system of claim 10, wherein the language technology components include at least one of a speech recognizer component, a speaker identification component, a topic detection component, and a name extraction component.

16. The speech system of claim 10, wherein the language technology components, the LCM, and the high-level application component are software modules that are distributed over a plurality of computing devices.

17. The speech system of claim 10, wherein the LCM presents a single system state to the high-level application component, the single system state being based on individual states of the language technology components.

18. The speech system of claim 17, wherein the single system state is selected from:

a starting up state that indicates that at least one of the language technology components is initializing,

a down state that indicates that at least one of the language technology components are not available, and

an up state that indicates the speech system is available.

19. The speech system of claim 10, wherein the configuration file is an extensible markup language (XML) document.

20. A system integration device comprising:

ports configured to connect with a plurality of components configured to perform speech and language processing functions;

at least one port configured to connect with a high-level application designed to implement a speech service using the functions provided by the components; and

a configuration file that includes routing information that describes communication paths among the high-level application and the plurality of first components, communications between the first components and between the first

components and the high-level application being routed through the system integration device based on the routing information in the configuration file.

21. The device of claim 20, wherein the configuration file is a complete system specification for a speech system.

22. The device of claim 20, wherein the high-level application provides speech services to end-users.

23. The device of claim 20, wherein the components include at least one of a speech recognizer component, a speaker identification component, a topic detection component, and a name extraction component.

24. The device of claim 20, wherein the system integration device presents a single system state to the high-level application, the single system state being based on individual states of the components.

25. The device of claim 24, wherein the single system state is selected from: a starting up state that indicates that at least one of the components is initializing, a down state that indicates that at least one of the components is not available, and an up state that indicates the plurality of components are available.

26. The device of claim 20, wherein the configuration file is an extensible markup language (XML) document.

27. A device for interacting among a plurality of components of a speech system, the plurality of components including one or more language technology components and at least one high-level application component, the device comprising:

- means for describing message and data connections between the one or more language technology components and the at least one high-level application component;
- means for receiving substantially all data communications in the speech system from the one or more language technology components and the at least one high-level application component;
- means for forwarding the received data communications to a designated one of the one or more language technology components and the at least one high-level application component based on the means for describing;
- means for receiving substantially all message communications in the speech system from the one or more language technology components and the at least one high-level application component; and
- means for forwarding the message communications to at least one of the one or more language technology components and the at least one high-level application component based on the means for describing.

28. A computer-readable medium containing programming instructions for execution by a processor, the computer-readable medium comprising:

instructions for causing the processor to connect with a plurality of components configured to perform speech and language processing functions;

instructions for causing the processor to connect with a high-level application designed to implement a speech service using the functions provided by the components; and

instructions that define a configuration file that includes routing information that describes communication paths among the high-level application and the plurality of components, the communications between the components and between the components and the high-level application being routed through the processor based on the routing information in the configuration file.

29. The computer-readable medium of claim 28, wherein the configuration file is a complete system specification for a speech system.